**Helpful Tips and Information for Completing Part 1 (Paragraphs 1 and 2) of the AP Biology Final Exam**

Mrs. Krouse, AP Biology

**Paragraph 1:** Anatomy Basics

1. Identify three key anatomical structures found in Wisconsin Fast Plants.

*\*\*\*Note: At least one structure should be a reproductive structure.\*\*\**

You can choose between the following structures: leaf, stem, root, stamen (i.e. the male reproduction part of a flower), or pistil (i.e. the female reproductive part of a flower, also called a carpel)

1. Use text and photographs or diagrams (not hand-drawn) to describe these structures. Your text descriptions should allow the reader to picture the structure vividly without consulting your photographs or diagrams. For example, if I was describing the petals of the flower, I might state, “the petals of a Wisconsin Fast Plant flower are bright yellow and oval in shape. They surround the male and female reproductive parts of the flower (i.e. the stamen and pistil). If your photographs or diagrams are taken from the internet, you must cite them by including a caption that states “image courtesy of…” followed by the web address where you found the image.

Below are examples of photographs and diagrams for each of the structures identified in Part A.

***Diagram of Stem, Leaves, and Flowers***



Image courtesy of <https://www.enasco.com/c/science/Botany_Botanical/Wisconsin+Fast+Plants%26%23174%3B/?ref=breadcrumb>

***Photograph of Leaves***



Image courtesy of <http://www.carolina.com/wfp-mutant-seed-stocks/wisconsin-fast-plants-non-purple-stem-hairless-anthocyaninless-hairless-seeds/FAM_158812.pr>

***Photograph / Diagram of Flower***

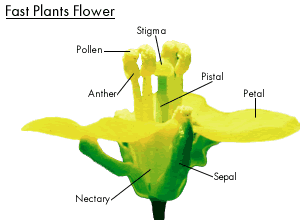


Image courtesy of <https://www.thinglink.com/scene/601479435320819713>

Diagram of Roots

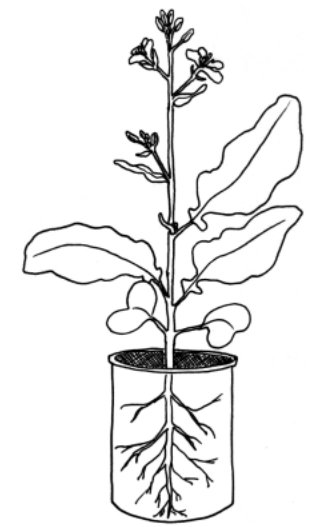


Image courtesy of <http://www.fastplants.org/pdf/activities/seed_challenge.pdf>

1. Identify the function of each structure.
2. Explain how a particular feature of each structure contributes to its function. Example features you may choose are cell types within the structure, organization of cells within the structure, shape of the structure, etc.

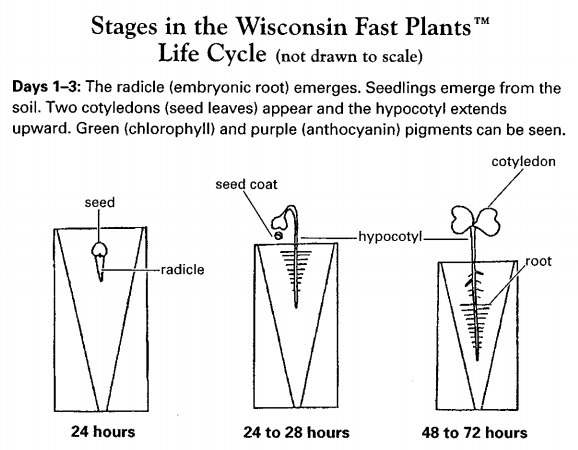
To get information about the features of particular structures, you can use… drum roll please… our NEW AP biology textbooks (finally).

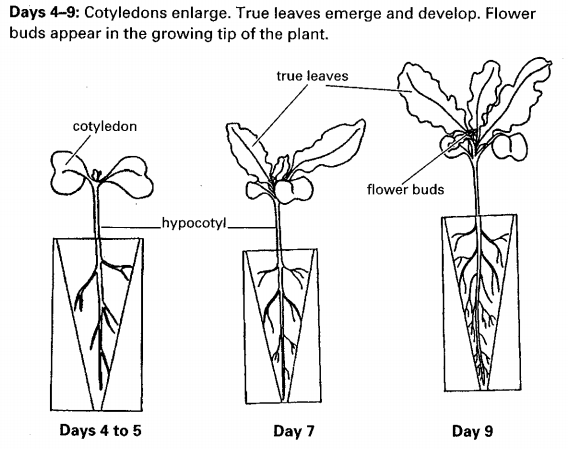
Our textbook is called *Biology: The Unity & Diversity of Life* (13th Edition)*.* It was written by C. Starr, R. Taggart, C. Evers, and L. Starr. There are copies for you to use during class. I feel that the following pages will provide helpful information for this requirement in your report. However, you must write your report IN YOUR OWN WORDS.

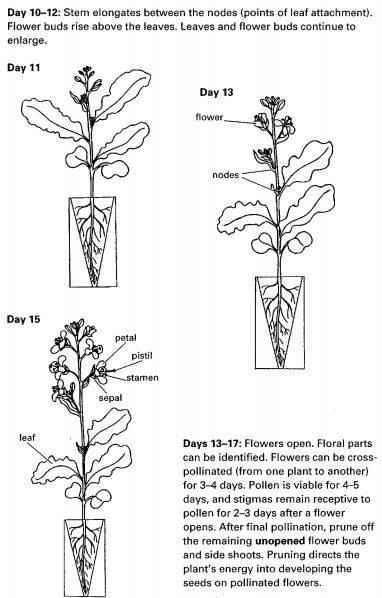
|  |  |
| --- | --- |
| **Pages** | **Information Provided** |
| 454-459 | General information about plant anatomy and tissues within plant structures (Everyone should read these pages before moving on to more specific information about particular structures.) |
| 460-461 | Information about leaf anatomy |
| 462-463 | Information about root anatomy |
| 476-477 | Information about water movement inside plant roots, stems, and leaves |
| 478-479 | Information about water conservation in plant stems and leaves |
| 480-481 | Information about sugar movement inside plant roots, stems, and leaves |
| 485-491 | Information about flower anatomy |

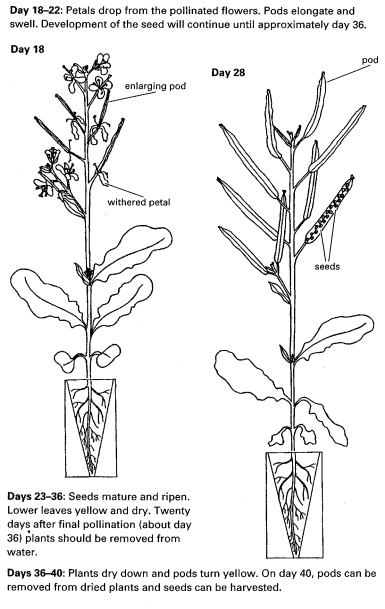
Let’s say one structure I chose was the leaves. I may state that the primary function of the leaves is to capture sunlight for photosynthesis but the leaves also possess adaptations for minimizing water loss to the environment. I may choose to discuss the guard cells surrounding the stomata as my chosen “feature” of leaves because they respond to changes in the environment to close the stomata when necessary to prevent excessive loss of water as a result of transpiration.

In case you’d like to know more about the life cycle of Wisconsin Fast Plants, the information given below comes from the following source: <http://abacus.bates.edu/acad/depts/biobook/FastPGro.pdf>









**Paragraph 2:** Quantitative Traits and Descriptive Statistics

1. Identify the quantitative trait you chose to measure/count.

We chose to determine the average number of leaves on each F1 plant.

1. Provide a chart to show the data you collected for this trait.

You can use the following chart in your report. Remember to include a title for your chart!

|  |  |
| --- | --- |
| **AP Biology Class Section** | **Average Number of Leaves per Plant** |
| 1 | 4.0 |
| 2 | 4.2 |
| 3 | 4.3 |
| 4 | 5.2 |
| 5 | 5.0 |
| 6 | 4.8 |
| 7 | 4.2 |
| 8 | 4.3 |
| 9 | 3.9 |
| 10 | 4.6 |

1. State the following statistical values for your data set and explain the meaning of each value—mean, standard deviation, standard error, and 95% confidence limit.

*\*\*\*Note: In the appendix of your report, you must show your calculations for standard error and 95% confidence limit.\*\*\**

You can find information about these values in the following assignments given throughout the year…

|  |  |
| --- | --- |
| **Unit** | **Assignment Name** |
| 2 (Macroevolution) | Statistical Analysis of Molecular Sequence Data Assignment and In-Class Tutorial |
| 9 (Cell Signaling) | Cell Signaling Statistics Assignment and Key |
| AP Exam Review | Calculations Review Packet and Key |